Model for *Pinus pinaster atlantica* stands Galicia and Asturias coast (Spain)

Model

Ppinaster_at_stand__gal_coast__v01.py

Model description

- Specie: *Pinus pinaster atlantica* Ait. subsp. *atlantica*
- Spanish Forest Inventory (SFI) code: 26
- Geographical area: Galicia and Asturias coast (Castilla y León)
- Geographical area (administrative): A Coruña, Pontevedra, north Lugo and Asturias

Figure 1: *Pinus pinaster*, by Felipe Castilla, website http://www.arbolapp.es/especies/ficha/pinus-pinaster/

Model type

- Category: stand growth
- Model level: stand
- Reproduction methods: seedling forest
- Stand structure: even-aged stands
- Species composition: monospecific stands
- Forest origin: natural

Figure 2: Details of *Pinus pinaster*, by 'A description of the genus *Pinus*', Aylmer Bourke Lambert

Model requirements and recommended use

- Initial inventory requirements: age, dominant height and density of the plot
- Geographical area: Galicia and Asturias coast, closer places and another places with similar characteristics (assuming differences)
- Stand type: monospecific stands, resinated or not
- Execution recommended time: 1 year executions (survival, growth and ingrowth equations developed by using that criteria)
- Site Index is defined as top height at a base age of 20 years

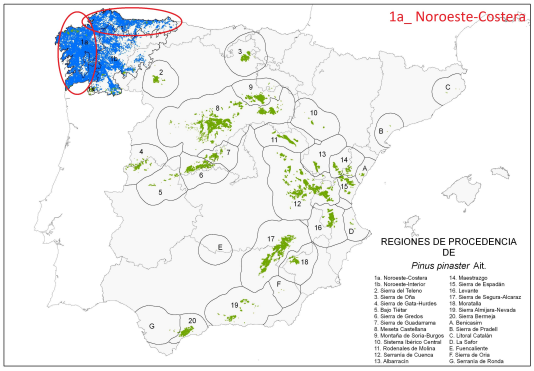
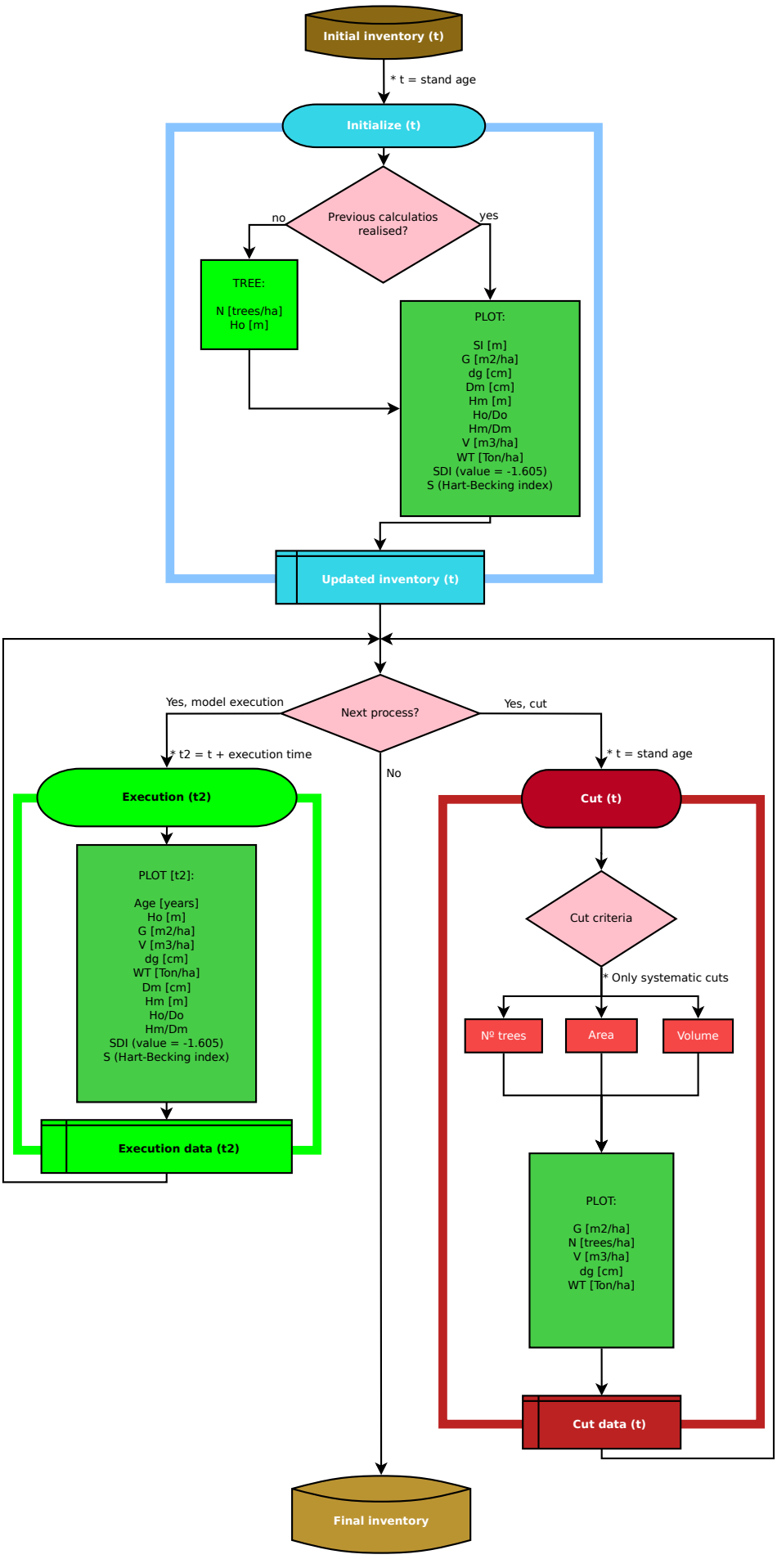


Figure 3: Provenance regions of *Pinus pinaster* in Spain, by MAPA

Bibliography

Model components:

- **Calculations by using tree data** (just in cases when that information is not available at the initial inventory):
  Density and Dominant Height
- **Site Index equation**:
  Diéguez-Aranda U, Rojo A, Castedo-Dorado F, et al (2009). Herramientas selvícolas para la gestión forestal sostenible en Galicia. Forestry, 82, 1-16
- **Dominant Height Growth equation**:
  Diéguez-Aranda U, Rojo A, Castedo-Dorado F, et al (2009). Herramientas selvícolas para la gestión forestal sostenible en Galicia. Forestry, 82, 1-16
- **Initial and Growth Basal Area equation**:
  Diéguez-Aranda U, Rojo A, Castedo-Dorado F, et al (2009). Herramientas selvícolas para la gestión forestal sostenible en Galicia. Forestry, 82, 1-16
- **Volume equation**:
  Diéguez-Aranda U, Rojo A, Castedo-Dorado F, et al (2009). Herramientas selvícolas para la gestión forestal sostenible en Galicia. Forestry, 82, 1-16
- **Mean Height and Diameter equation**:
  Diéguez-Aranda U, Rojo A, Castedo-Dorado F, et al (2009). Herramientas selvícolas para la gestión forestal sostenible en Galicia. Forestry, 82, 1-16
- **Biomass equation**:
  Diéguez-Aranda U, Rojo A, Castedo-Dorado F, et al (2009). Herramientas selvícolas para la gestión forestal sostenible en Galicia. Forestry, 82, 1-16
- **Quadratic Mean Diameter, Hart and Reineke Index equations**:
  Standard equations
- **Harvest equations**:
  Harvest equations developed by using equations mentioned before.


Initial inventory (t)
* t = stand age
Initialize (t)
Previous calculatios realised?
no
yes
TREE:
N [trees/ha]
Ho [m]
PLOT:
SI [m]
G [m2/ha]
dg [cm]
Dm [cm]
Hm [m]
Ho/Do
Hm/Dm
V [m3/ha]
WT [Ton/ha]
SDI (value = -1.605)
S (Hart-Becking index)
Updated inventory (t)
Next process?
Yes, model execution
Yes, cut
No
* t2 = t + execution time
* t = stand age
Execution (t2)
PLOT [t2]:
Age [years]
Ho [m]
G [m2/ha]
V [m3/ha]
dg [cm]
WT [Ton/ha]
Dm [cm]
Hm [m]
Ho/Do
Hm/Dm
SDI (value = -1.605)
S (Hart-Becking index)
Execution data (t2)
Cut (t)
Cut criteria
* Only systematic cuts
Nº trees
Area
Volume
PLOT:
G [m2/ha]
N [trees/ha]
V [m3/ha]
dg [cm]
WT [Ton/ha]
Cut data (t)
Final inventory

Contacts

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Interest Links

SIMANFOR - Support system for simulating Sustainable Forest Management Alternatives. Accessed 11 May 2021, in `https://www.simanfor.es/`

iuFOR - Sustainable Forest Management Research Institute UVa-INIA. Accessed 11 May 2021, in `http://sostenible.palencia.uva.es/`

ETSIIAA Palencia - Higher Technical School of Agricultural Engineering of Palencia. Accessed 11 May 2021, in `http://etsiiaa.uva.es/`

UVa - University of Valladolid. Accessed 11 May 2021, in `https://www.uva.es`